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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,626	04/10/2007	François Blaudin De The	12928/10031	3579
23280 7590 02/25/2009 Davidson, Davidson & Kappel, LLC 485 7th Avenue 14th Floor New York, NY 10018				
EXAMINER				
BOYD, ERIN M				
ART UNIT		PAPER NUMBER		
3663				
MAIL DATE		DELIVERY MODE		
02/25/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Advisory Action**  
**Before the Filing of an Appeal Brief**

**Application No.**

10/583,626

**Applicant(s)**

BLAUDIN DE THE, FRANÇOIS

**Examiner**

Erin M. Boyd

**Art Unit**

3663

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 12 February 2009 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: \_\_\_\_\_.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☐ Other: \_\_\_\_\_.

February 24, 2009

/E.M.B./  
/Rick Palabrica/  
Primary Examiner, Art Unit 3663

Continuation of 11. does NOT place the application in condition for allowance because:

1. Applicant's arguments filed 2/12/2009 have been fully considered but they are not persuasive.
2. Applicant argues on page 5, paragraph 5 that nothing essential is omitted by thereafter including a single method step and the dependency on claim 6 eliminates any incompleteness. The Examiner disagrees. Claim 6 is a product and does not recite the steps of manufacturing the product. Said product could have been made by a materially different process than that recited in Claim 12. The specification discloses steps for manufacturing the fuel rod on page 7, paragraphs 2 and 3 which are not included in Claim 12; thus, Claim 12 is in fact missing essential steps for manufacturing the full and complete structural device (i.e. fuel rod). Examiner maintains the rejection of Claim 12 under 35 U.S.C. § 112, second paragraph.
3. Applicant argues on page 6, paragraph 5 that the admission in the specification ("A conventional method for increasing the volume for the expansion of gases inside a MOX fuel rod involves interposing between the upper surface of the lower plug inside the cladding and the first lower end of the column of fuel pellets, a cross-member or shim...") teaches away from modifying the space of Bresnick, as it teaches that it would have been conventional to put a shim on the top surface 15 of Bresnick.  
In response Examiner argues that the teaching pulled from the admitted prior art is that placing a cross member on a conventional lower end plug, as seen in figures 1A and 1B, increases the volume for the expansion of gases inside a MOX fuel rod. The conventional lower end plug does not comprise three cylindrical portions of different diameters as does the modified lower end plug of Bresnick. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). One of ordinary skill in the art would have interpreted the lower end plug of Bresnick to function similar to the combined conventional lower end plug and cross-member.
4. Applicant argues again on page 7, paragraph 4 that one of ordinary skill in the art would not have determined, through routine experimentation, that the radial clearance for assembly and passage of gas between one and two tenths of a millimeter is optimal because one of skill in the art would not have determined that the clearance size would be a result effective variable. Again, Examiner disagrees. As applicant admits in his specification background (page 3, paragraphs 2 and 4), methods for increasing the volume inside fuel rods for expansion of gases have been explored prior to his invention. One of ordinary skill in the art would realize that increasing the clearance size between the fuel and cladding would increase the volume inside fuel rods for expansion of gases (notice also the clearance taught in Ocken, figure 2). Thus, the result effective variable would be to provide sufficient volume in the fuel rod to facilitate gas expansion (See MPEP §2144.05 (II)).
5. Applicant argues again on page 7, paragraphs 5-6 that one of ordinary skill in the art would not have determined, through routine experimentation, that the second cylindrical portion of the inner portion of the lower plug having a diameter of between 40% and 60% is optimal because one of skill in the art would not have determined that the proportions of the lower plug diameter and inner diameter of the cladding would be a result effective variable. Again, Examiner disagrees. As applicant admits in his specification background (page 3, paragraph 2), methods for increasing the volume inside fuel rods for expansion of gases have been explored prior to his invention. One of ordinary skill in the art would realize that increasing the volume of the lower plenum would increase the volume inside fuel rods for expansion of gases.  
Furthermore, unless the dimensions are critical to the invention, where the general conditions are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (See MPEP §2144.05 (II)). Applicant admits in his specification on page 13, line 25-33 that the intermediate portion (second cylindrical portion) may have any length in the axial direction which allows the end of the tubular cladding to be closed in a tight manner relative to the first cylindrical portion and the fuel pellet column; thus, the limitation that the length of the second cylindrical portion is 8 to 10 times the diameter of the tubular cladding is not critical to the invention. In addition, if said dimension is critical to the invention, then independent Claim 6 is missing essential elements.
6. Applicant argues again on page 8, lines 15-24 that it would not have been obvious to modify Bresnick in view of Ocken as Bresnick is not designed to have expansion space of gas capabilities for use with MOX. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).  
Furthermore, it would have been obvious to one of ordinary skill in the art of nuclear fuel rod design at the time of the invention that uranium fuel can be replaced by MOX fuel wherein the motivation for using mixed oxide (uranium and plutonium) as fuel in the fuel rod of a reactor is to provide the necessary heat energy for a coolant flowing past the fuel rod, yet the maintaining the structural integrity of said fuel rod (Ocken; column 2, lines 28-34). Upon replacing the uranium fuel with MOX fuel, one of ordinary skill in the art of nuclear fuel rod design would know that the fuel rod parameters (i.e. expansion space) would need to be modified to be suitable for MOX fuel.  
Examiner asserts that it would have been obvious to one of ordinary skill to modify Bresnick in view of Ocken. A motivation for looking to Ocken, a MOX reference, is to benefit from the advantages of MOX fuel as stated above.
7. Applicant argues on page 9, paragraph 4 that cylindrical body 6e is the cross member, but Hayashi discloses a support for the fuel pellets in the fuel rod which is similar to the third portion in the present invention rather than a cross member with the purpose of allowing gas to pass through, prevent scorching of the cladding, and guiding the central part of the plug inside the cladding. In response to

applicant's argument, a recitation of the intended use ("purpose") of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

8. Based on the above arguments, the Examiner maintains the rejections in the previous office action.